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**STUDY
PROJECT****NATO'S FOLLOW-ON FORCES ATTACK (FOFA) CONCEPT:
PAST, PRESENT AND FUTURE**

BY

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PAST, PRESENT AND FUTURE

AN INDIVIDUAL STUDY PROJECT

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NATO'S FOLLOW-ON FORCES ATTACK (FOFA) CONCEPT:
PAST, PRESENT AND FUTURE

CHAPTER I

INTRODUCTION

NATO's operational sub-concept of Follow-on Forces Attack (FOFA) began its evolution in the late nineteen seventies when General Bernard W. Rogers was Supreme Allied Commander Europe (SACEUR). The FOFA sub-concept was "designed to attack with conventional weapons those enemy forces which stretch from just behind the troops in contact to as far into the enemy's rear as our target acquisition and conventional weapons systems will permit" in order to "reduce to a manageable ratio ... the number of enemy forces arriving at our General Defensive Position."¹

Development and promotion of FOFA was driven by a perception that NATO's conventional warfighting capability had become stagnant.² Additionally, something had to be done to counter the Warsaw Pact's relentless buildup of conventional weapons and to counter their reliance on an offensive doctrine calling for the extensive use of echeloned forces. FOFA was seen as a major part of the answer to those dilemmas and the use of Emerging Technologies (ET) was seen as the key to FOFA.

A lot has happened since the gloom and doom of the late seventies. On the NATO side, many positive developments have occurred that place the Alliance in an enviable position. The combat effectiveness of NATO's forces has improved through

extensive modernization and changes in force structure. Military budgets of member countries have generally increased at an acceptable rate to maintain an adequate defense. The conventional leg of the triad of forces has been strengthened in relation to the strategic and theater nuclear legs through such actions as the Conventional Defense Improvement Initiative (CDI)³ and the Conceptual Military Framework (CMF)⁴. And, cooperative agreements among member countries in such areas as armaments, science and foreign policy have increased significantly.

On the Warsaw Treaty Organization (WTO) side, developments have also been significant, although not so positive from their perspective. All member countries are in some stage of economic, political and military restructuring that should eventually lead to some form of market economy and representative government. WTO cohesion and potential are diminishing daily as 1) some eastern European countries request the departure of Soviet troops, 2) internal civil conflicts and rising nationalism divide regions and countries, 3) WTO militaries lose their internal political power and influence, and 4) one member state approaches unification with an Alliance state under a western model. Finally, the abject failure of communism has led the Soviet Union and her allies to an overriding doctrine of reasonable sufficiency and a restructuring and reduction of forces to support a new defensive strategy.

Concurrent with the rise of democracy and the fall of communism, NATO and WTO members have cooperatively nurtured a number of programs that have been mutually beneficial to their individual goals. The Conference on Security and Cooperation in Europe (CSCE) framework can be credited with major breakthroughs in promoting peace in the region. The Intermediate Range Nuclear Forces (INF) Treaty between the US and the USSR has eliminated a complete class of nuclear weapons from Europe. Strategic Arms Reduction Talks (START) continue with some optimism for success in the near future. Mutual and Balanced Force Reductions (MBFR) negotiations led to the current round of Conventional Forces in Europe (CFE) talks where a plan for reduced and equal combat forces between the WTO and the NATO may soon be a reality. High level military exchanges and visits are becoming common occurrences. And, civilian exchanges and commercial cooperation between East and West have become nearly as common as similar activities between and among NATO countries.

What does all of this have to do with FOFA? If the Warsaw Pact has truly abandoned its offensive strategy for a defensive strategy; if they have really stopped their relentless buildup of conventional armaments and are seriously considering signing and living up to a CFE agreement; and if NATO's conventional capability has recovered from its stagnant days of the late seventies; then all of the reasons cited to develop and promote a FOFA capability within NATO have disappeared. Add the high costs of ET and the expected decline in NATO country military budgets

and some interesting questions result. Does the FOFA concept have a place in the new NATO strategy? If it does have a place, what form should it take and what priority should it have? Is there popular support for the FOFA concept within NATO and can NATO countries afford the high technology systems required to support FOFA? After reviewing the history and current status of the FOFA sub-concept within NATO, possible answers to these questions will be discussed.

ENDNOTES

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2. Ibid., p. 1.
3. Hans-Joachim Mack. "Conventional Defence Improvements." NATO's Sixteen Nations, October 1985, p. 20.
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CHAPTER II

PAST

The concept of attacking an enemy's follow-on forces has been a basic tenant of warfare since the British invented the long bow in the middle of the fourteenth century.¹ Artillery, mortars, manned aircraft, rockets and missiles were all developed and used in past wars with consideration given to affecting the outcome of the close battle by disrupting, delaying, diverting, depleting, or destroying enemy forces beyond the close battle. Early in this century, Russian military theorist Marshal Tukachevski wrote extensively on the concept of deep operations, and elements of his work appeared in Soviet and German Wermacht military doctrine and strategy of that period.² During the 1980's, the United States developed its Deep Battle³ and Deep Operations⁴ concepts within the framework of AirLand Battle, and the Soviet Union increased its emphasis on deep operations through the emergence of the Reconnaissance - Strike and Reconnaissance - Fire concepts.⁵

BACKGROUND

NATO's first formal look at an operational strategy to attack follow-on forces came in 1979 when the SACEUR, General Bernard W. Rogers, commissioned his staff to do a study titled "To Attack and Destroy the Second Echelon".⁶ After the study was

completed, several years of debate, criticism and justification of the concept ensued. As the study title implies, emphasis was originally on targeting the WTO second operational echelon. In 1981, Supreme Headquarters Allied Powers Europe (SHAPE) became aware of WTO testing of the Operational Maneuver Group (OMG) concept and attacking only second echelon forces could no longer be considered a limiting factor. Finding and attacking the OMG and other key nodes deep behind the line of contact became critical to a successful forward defense and all WTO forces behind those in contact became follow-on forces. Hence, the title Follow-on Forces Attack or FOFA.

In November 1984, a document titled "Long Term Planning Guideline for Follow-on Forces Attack" was approved by NATO's Defence Planning Committee (DPC)⁷ and FOFA was on its way to becoming an official sub-concept of the overall Allied Command Europe (ACE) concept of operations. The general plan was to use emerging high technology to develop sensor and weapons systems with increased range and greater accuracy to target and attack WTO follow-on forces (including the OMG) before they hit NATO's General Defensive Positions (GDPs). Attacking deep targets was not a new goal for NATO commanders; however, adequate target acquisition and conventional weapons systems, other than manned aircraft, were not previously considered feasible nor affordable.⁸

RELATED PROGRAMS

Two NATO programming and planning initiatives that evolved concurrently and in conjunction with FOFA are worthy of mention in a discussion of the history of FOFA: NATO's Conceptual Military Framework and the Conventional Defence Improvements Initiative.

Conceptual Military Framework

Throughout the 1970s and into the early 1980s, NATO force goals and force proposals came out of the Defence Planning Review as an integral part of the allied defense planning process. That process worked well for short and mid term planning; however, armaments planning, and therefore long term planning, became increasingly important as military technologies became more complex and advanced. In 1980, a long term aspect was added to the defense planning process. Long Term Planning Areas (LTPAs) and Long Term Planning Guidelines (LTPGs), derived from Ministerial Guidance, became key planning tools. LTPGs supported by operational concepts were to serve as a basis for Mission Need Documents (MNDs)."

Initial experience with this process pointed to a need for a broader more conceptual approach to facilitate the transition from general Ministerial Guidance to more specific LTPGs and MNDs. As a result of this deficiency, in 1983, the Military Committee (MC) asked SACEUR to come up with a conceptual framework to relate the FOFA LTPG to other LTPAs. Concurrently,

the DPC tasked NATO Military Authorities (NMAs) to "develop a conceptual military framework as a basis for establishing priorities for the selection and application of Emerging Technologies (ET) in meeting military requirements".¹⁰

The product of these taskings was the document MC 299. "It defines the main elements of the strategy of flexible response and forward defence, analyses deficiencies in conventional forces which limit the execution of this function, and identifies the areas on which NATO should concentrate in order to enhance deterrence and defence."¹¹ Those areas of concentration within the CMF are called Key Mission Components (KMCs). The defeat of Pact forces and the "neutralization of the reinforcing formations behind them together with their supporting assets and installations" were established as integral parts of the KMC structure.¹²

Like FOFA, the CMF originated with the evolution of ET. Unlike FOFA, although primarily focused on conventional forces, the CMF also deals with the relationships among the conventional and nuclear legs of NATO's triad of forces. The CMF served to provide a foundation upon which the FOFA sub-concept could evolve.

Conventional Defence Improvement Initiative

"We are taking the appropriate steps to ensure the deterrent value of our strategic and nonstrategic nuclear forces. NATO has not made a sufficient effort for our conventional forces."¹³

"The critical weakness in the NATO force posture is currently the inadequacy of its conventional forces, when measured against the conceptual requirements."¹⁴ These are the words of General Rogers, the SACEUR from 1979 to 1987, and one of his deputy commanders; however, these views reflect the prevailing attitude throughout NATO during the late 1970s and early 1980s. The Conventional Defence Improvement Initiative (CDI) was established by the NATO leadership to turn the tide of conventional forces deterioration, to balance the triad of forces, to maintain deterrence, and to make the Flexible Response strategy viable.

The CDI evolved concurrently with the CMF and both concepts formally became part of the NATO philosophy in May 1985. CDI "assessed the ability of the allies to meet the longer-term challenges of the 1980s and 1990s and provided a special review of steps to improve conventional defence capabilities".¹⁵ The basic idea was to update equipment and infrastructure through calculated adaptation of modern technology and to limit costs through greater cooperation in research, development and production of armaments. The focus was on identifying conventional force weaknesses and deficiencies and then establishing and following through on requirements to correct those deficiencies.

Like FOFA and CMF, CDI was inextricably tied to ET. For CDI, however, ET was a two edged sword. It was part of the solution and part of the problem. Increasing monetary contributions by NATO members were unable to keep up with the rising equipment

costs and the result was a general decline in conventional capabilities. Through effective application of the principles of CDI, NATO's conventional posture has been significantly enhanced in the past five years. The evolution of the FOFA sub-concept of operations is a prime example of CDI success.

STRUCTURE

Keeping the definition and objectives of FOFA in mind, it is now time to address what kind of equipment structure and procedural changes were envisioned to make FOFA possible. Three basic variables of the FOFA equation were identified:

1) surveillance and target acquisition, 2) weapons and delivery, and 3) command, control and communications (C3) to link the other two categories. Each element was considered equally critical and the success of a FOFA campaign would be directly tied to the quality and synergism among the systems that support FOFA. A more detailed breakdown of the FOFA architecture given by the U.S. Congressional Office of Technology Assessment included:¹⁶

- 1) surveillance and target acquisition systems to identify and locate the targets;
- 2) timely analysis and dissemination of the information to permit planning the attacks;
- 3) timely command decision allocating attack assets to targets;
- 4) platforms to deliver the weapons to the targets;
- 5) control of the platform to the location of the target at the time it arrives;
- 6) weapons that can engage the targets;
- 7) munitions that can destroy the targets; and
- 8) survivability of airplanes and their bases, ground based launchers, and surveillance systems so that operations can continue.

NATO commands possessed limited capabilities to accomplish all of these tasks in 1984 when the FOFA sub-concept was adopted; however, most required mid or long term programs to improve equipments, capabilities and their interaction in order to make FOFA a successful component of NATO strategy.

Near term opportunities to implement FOFA were seen primarily in procedural changes and low cost initiatives.¹⁷ Dedicated or tailored C3 systems; small groups or individuals dedicated to the FOFA battle; accommodations to provide cross corps support with ground launched weapons; increased buys of existing weapons systems that support FOFA; and improved training for planning and executing the FOFA battle are just a few examples of what were seen as near term solutions to the FOFA dilemma. Much of the success of NATO's FOFA sub-concept can be attributed to low cost initiatives and near term fixes.

CRITICISMS OF FOFA

NATO's FOFA sub-concept has had a number of supporters throughout its evolution; however, it has also had its critics. General Rogers sensed the need to dispel the myths and criticisms that arose during the development of the FOFA sub-concept and in 1984 he addressed many of them in an article titled "Follow-on Forces Attack (FOFA): Myths and Realities".¹⁸ In General Roger's words, "partial truths" and "outright errors" were "distorting reality" and if "not exposed, they could lead to unwise policy advice and hinder public support" which was

considered "vital" if NATO "plans to improve conventional capabilities" were "to succeed".¹⁷ Some misperceptions about FOFA continue to exist; however, anyone who is willing to research the subject can normally resolve any apprehensions.

Historical criticisms of FOFA are: 1) FOFA is not applicable to Soviet/Warsaw Pact doctrine²⁰; 2) FOFA has the wrong priorities²¹; 3) FOFA is a new strategy²²; 4) FOFA is U.S. AirLand Battle by another name²³; 5) FOFA is an offensive strategy²⁴; 6) FOFA will replace the nuclear option²⁵; 7) FOFA is nothing but joint interdiction by another name²⁶; and 8) successful FOFA relies on unproven, unreliable and unaffordable ET²⁷. All of these criticisms have been adequately addressed by NATO authorities and FOFA has survived as a key element of NATO's strategy and NATO's conceptual framework. In order to establish a foundation for further discussions, each criticism will be discussed briefly.

FOFA is not applicable to Soviet/Warsaw Pact doctrine. Some critics have said that the Soviet OMG doctrine outdates rather than supports NATO's FOFA sub-concept. Their rationale is that the OMG was designed to be a close in, highly maneuverable force for exploiting success and that the use of OMGs on a European battlefield would reduce or eliminate the need for echeloning. Use of the OMG is only one option that the WTO might employ and echeloning would also occur where force requirements and terrain dictate. The OMGs and all advancing enemy forces beyond the troops in contact are considered possible high priority targets

for FOFA.²⁵ The Soviet Union and the WTO are currently undergoing a major military doctrinal evolution and a similar argument may resurface.

FOFA has the wrong priorities. Critics have said that if NATO applies manpower, equipment and monetary resources against the FOFA battle, the close battle, and therefore NATO's forward defence, will be less effective. Just the opposite is actually true. The close battle and FOFA are mutually reinforcing and complementary concepts. Not to dedicate assets to either one would mean eventual failure to accomplish the other and an accelerated need to escalate NATO's defensive response.²⁶ The obvious solution is some optimal balance of resources applied to all of the variables in NATO's operational concept.

FOFA is a new strategy. FOFA was not a new strategy nor did it replace a previously held NATO strategy. FOFA was simply an evolution and a refinement of NATO's operational concept within the framework of its Flexible Response strategy. It was adopted primarily as a means to add depth to a geographically shallow battlefield by focusing on technologies that were previously not available.²⁷

NATO's FOFA concept is U.S. AirLand Battle (ALB) by another name. The two concepts evolved separately, on different timelines and for different purposes. In truth, they are more diverse than they are similar. NATO's FOFA is purely conventional; ALB is not. NATO's FOFA was designed to support a defensive doctrine; ALB may involve offensive and preemptive

actions. NATO's FOFA has a European focus; ALB applies worldwide through the full spectrum of conflicts. One similarity the two concepts do share is the goal to support the front line battle by targeting enemy forces beyond the troops in contact.²¹

FOFA is an offensive strategy. In a NATO context, FOFA should not be considered offensive, aggressive, provocative or, for that matter, even defensive. It is simply an operational concept whereby, if attacked, NATO can best use its technological know-how to hold or regain sovereign territory. In the unlikely and unfortunate event that another war should break out in Europe, FOFA could, and most probably would, be used by both sides of the conflict to achieve their desired objectives. The offensiveness or defensiveness of the action lies solely in those desired objectives.

FOFA will replace the nuclear option. NATO's strategy of flexible response relies on a balanced triad of forces: strategic nuclear, theater nuclear and conventional. During the late 1970s and early 1980s, a weak conventional leg had upset the balance of the triad and made earlier escalation to a nuclear response more likely in the event of war. FOFA was just one of the actions taken to restore the balance of forces by strengthening the conventional leg. NATO's goal remains "a flexible and balanced range of responses, conventional and nuclear, to all levels of aggression or threats of aggression".²²

FOFA is nothing more than joint interdiction by another name. Traditional interdiction seeks to delay, disrupt, divert and

destroy enemy forces wherever, whenever and for as long as possible. FOFA is more precise and more demanding than that. It seeks to delay, disrupt, divert, deplete or destroy a specific enemy force, at a specific point, at a specific time, to accomplish a specific task in support of the ground commander's scheme of maneuver. 22

Successful FOFA relies on unproven, unreliable and unaffordable ET. A study of the evolution of military technology over the past decade will dispute the charge that the technology envisioned to support FOFA has remained unproven. Yesterday's unproven technology has become today's breakthrough. The subject of reliability and cost, however, must be placed in perspective and involves a number of variables. How accurate must sensor and weapons systems be? How timely must target, fusion and tasking data be? How deep must surveillance, target acquisition and weapons systems reach? How much of the battlefield must be seen concurrently? And, how survivable must sensor and weapons systems be? Answers to these questions will produce a degree of reliability and cost effectiveness in each person's mind. More accuracy, more timeliness, more depth, more coverage, and more survivability generally mean more reliability and higher cost. The trick is to balance the requirements with the resources and to build the best capability possible.

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CHAPTER III

PRESENT

NATO's long term approach to FOFA can be considered an alliance success story. Five years of development and six years of growth have created a sub-concept that has played a major supporting role in rejuvenating NATO's conventional capability and in deterring war in Europe. The broad application of initiatives by NATO military authorities, ranging from simple procedural changes to low cost personnel and equipment initiatives to major systems development, has been the key to FOFA's success. Today, action officers from NATO Headquarters down through the Army Groups regularly address FOFA issues in conferences and working groups, and all commands down through the corps, divisions and brigades exercise FOFA related subsystems during command post and field training exercises. NATO is much better prepared to fight a war in Europe today having experienced the FOFA evolution than it would have been without it.

FOFA PROPONENCY

At NATO Headquarters, the FOFA concept is primarily seen as "a basis for long-term collective planning to guide priorities in the development and procurement of armaments suitable for implementing the concept".¹ As a result, the primary action officer for FOFA is on the International Staff and reports to the

Conference of National Armaments Directors (CNAD) through the CNAD Multi-Service Ad Hoc Group on FOFA. International cooperation in armaments research, development and acquisition in support of the FOFA sub-concept is their primary concern.²

At Supreme Headquarters Allied Powers Europe (SHAPE), where the FOFA concept began within NATO, the general FOFA concept is dealt with in the Land Section, Combat Requirements Branch, Operations Division of the Deputy Chief of Staff for Operations. This proponency is only significant in that FOFA is still considered an evolving concept at SHAPE and that proponency would normally shift to the Operations and Readiness Branch when the concept has matured. A shift in proponency might be expected as more sensor, weapons and C3 systems that are applicable to the FOFA sub-concept are fielded and become fully operational throughout NATO.

At NATO Major Subordinate Commands (MSCs) and below, proponency for FOFA is alternately handled by the intelligence and operations divisions or sections depending on the level of command and the operational requirement. Just as you might expect, the higher you go in the NATO command structure, the more concerned the commanders and staff are with new and improved systems to support FOFA and with developing the concept to fight the FOFA battle. Conversely, the lower you go in the structure, the more concerned the commanders and staff are with working with what they have and with applying low cost or procedural fixes to existing systems to accomplish FOFA.⁴

FOFA SUPPORT COMPLEX

Emerging Technologies

When NATO first adopted the FOFA sub-concept in 1984, only the Lance missile, manned attack aircraft and a few sensor systems could carry the conventional battle beyond 100km; Multiple Launch Rocket Systems (MLRS) and a few sensor systems could reach out to the 30km and 40km range; and long range artillery and a few more sensors could reach out to 25km. Munitions were only capable of destroying soft area targets beyond 100km and only fixed targets inside 100km. Few sensor systems had sufficient accuracy to provide targeting data and C3 systems were severely limited in their ability to handle intelligence and targeting data in the volumes and times required to be effective for FOFA. Air interdiction provided by manned aircraft was not timely nor reliable enough to be included as an integral part of the ground scheme of maneuver, and the munitions the manned aircraft carried were not effective against hard area or point targets. Essentially, the FOFA battle was limited by firepower, Command, Control, Communications and Intelligence (C3I), and range. FOFA capable of supporting the specific objectives of the ground commander was limited to less than 50km.

Since then, the density of MLRS has been increased, manned aircraft and the munitions they deliver have been significantly improved (Tornado and F-111)⁷, sensor systems have been updated and added (Improved GUARDRAIL and Tactical Reconnaissance System

(TRS))⁶, unmanned aerial vehicles (UAVs) have made their debut (CL-289 and Phoenix)⁷, integrated C3I systems have begun to reach the field (Limited Operational Capability Europe (LOCE)⁸ and Central Region Intelligence Communications Architecture (CRINCA)⁹) and the attack helicopter has gained new prominence within Europe as a deep strike weapons system (AH-64 Apache)¹⁰. The quality, quantity and range of systems supporting the FOFA battle have improved significantly. Through dedicated and cooperative efforts throughout NATO, effective FOFA capabilities have been extended from the nominal 50km of 1984 to around 100km to 120km today.

Special Operations Forces

ET has been the driving force in the evolution of FOFA within NATO; however, the low technology human side, in the form of unconventional warfare (UW) or special operations forces (SOF), can play a significant role in fighting a successful FOFA battle. SOF are not used by every country in NATO and, like FOFA, some consider the SOF mission offensive. In reality, SOF is merely another tool a NATO ground commander might use to respond to an enemy attack and to maintain or regain sovereign territory. It is not inherently nor simply offensive or defensive. Although classification restrictions limit what can be said about SOF missions, capabilities and wartime intentions, a discussion of

present day FOFA in NATO would not be complete without at least an overview of SOF. U.S. SOF doctrine is used as a point of departure.

SOF work in three primary mission areas: special operations, psychological operations and civil affairs. The special operations mission relates most closely to FOFA. Within the special operations category, SOF can conduct unconventional warfare (UW), direct action, and special reconnaissance operations. UW is a long term task and consequently, FOFA is primarily supported by direct action in the form of strikes, mines, explosives and target designation for precision guided munitions, and by special reconnaissance operations in the form of target acquisition and post strike assessments.¹¹

Air Interdiction

Manned aircraft providing air interdiction (AI)¹² have been an integral part of NATO's FOFA sub-concept since its inception. Although significant progress has been made in developing a truly joint interdiction capability, AI is still the primary means of executing FOFA.¹³ AI does have its limitations, however, since 1) Few NATO aircraft are able to operate well at night or in bad weather; 2) few can reach more than 150km forward of the front line of troops; 3) existing weapons cannot destroy armored vehicles in significant numbers; 4) existing weapons are most capable against fixed vice moving targets, and even mobile targets are difficult to strike because of an inadequate C3

structure to provide timely targeting and updates; 5) most NATO aircraft face competing demands from other missions such as offensive and defensive counter air (OCA/DCA), close air support (CAS), and nuclear standby; 6) the high density and increasing sophistication of WTO air defenses cause some analysts to question the viability of manned penetration missions; and 7) the battlefield activities of air and ground force commanders are not synchronized¹⁴.

Fortunately, equipment limitations are being addressed in ongoing and projected system procurement programs. Competing mission priorities will continue to be a challenge since dual and multi-role aircraft programs are inherently more cost effective than their single role counterparts. As long as NATO commanders continue to subscribe to the philosophy that, "it is not a question of either/or, but a question of balancing each mission against the other on a daily basis in pursuit of the operational objective"¹⁵, then the limitation of competing priorities will remain minor and manageable. The viability of manned penetration missions is in the eye of the beholder based on subjective evaluations of the cost/benefit and the acceptable risk. The technological measure/countermeasure duel will continue indefinitely but the exponential rise in the costs associated with manned aircraft and their supporting survivability suites weight the viability decision more and more. Synchronizing the air and ground battlefield activities in time, space and purpose is critical to the FOFA battle¹⁶; however, synchronization is

primarily procedural and therefore, theoretically at least, the easiest limitation to solve.

Force Disparities

The FOFA capability throughout NATO, from country to country, from command to command, and from region to region, varies significantly. Disparities exist in age, quality, quantity and capability of FOFA related equipment such as manned attack aircraft, attack helicopters, artillery and rockets and, most importantly, in surveillance, target acquisition (STA) and C3 capabilities. Significant variances also exist among NATO countries in individual and unit training, in readiness, and in national demography.¹⁷ These force disparities are constantly changing as budgets, politics and threat perceptions change, and are inevitable by-products of an alliance of sixteen sovereign nations. NATO authorities have made significant strides in overcoming or adapting to force disparities through cooperative joint and combined programs and through mutually agreed upon standards.

FOFA TEMPLATE

Range

General Rogers called for FOFA to reach "as far into the enemy's rear as our target acquisition and conventional weapons systems will permit"¹⁸. In 1984¹⁹, 1987²⁰ and in 1990²¹, that statement was quantified and interpreted to mean a depth of

400km up to 800km with priority given out to a range of 150km. This interpretation is driven primarily by the estimated range to targets that pose the most immediate threat to NATO's forces in contact and by current and projected technology restrictions. Some attempts have been made to break the FOFA battle down into bands of intermediate range (out to 150km) and long range (beyond 150km) FOFA²²; tactical (Corps deep operations), operational (Army Group deep operations), and strategic (SHAPE/AFCENT deep operations) FOFA²³; or category 1 (5km to 30km), category 2 (30km to 80km), category 3 (80km to 150km), category 4 (150km to 350km), and category 5 (350km to 800km)²⁴ FOFA.

Some form of range band delineation for the FOFA sub-concept would be useful; however, whatever emerges as the predominant choice must be universally accepted and applied throughout the NATO community. A conceptual range band, not tied to specific range measurements, might be most useful within NATO to accommodate terrain variances throughout the region and evolving battlefield dynamics caused by the rapid changes in eastern Europe and the Soviet Union.

Cross Corps Support

In the past, if a weaker NATO corps, or a NATO corps facing a concentrated WTO thrust, had become tasked to its limits and reinforcement was required, support would have come from the army group or regional command reserves or from a reallocation of air assets. Since FOFA has evolved as a sub-concept of operations

within NATO, another option has emerged: cross corps support by ground force assets belonging to an adjacent corps. Cross corps support operations became feasible with the development of corps sensor and weapons systems with adequate range and accuracy to support the FOFA battle (ie. attack helicopters and MLRS). Pre-FOFA, adjacent corps planning and coordination was limited to procedures for handing off an opposing force whose movement carried them laterally across a common boundary.²⁵ Today, cross corps support operations have become just as important.

With the introduction of the cross corps support option came the requirement to establish better communications links among the corps and the army groups and to integrate cross corps support into routine training exercises. To accomplish this task, low cost initiatives and ad hoc procedures using existing equipment and personnel have been adopted throughout NATO until more formal procedures and upgraded C3 equipment can be put in place.²⁶ Unfortunately, the US and German corps who are best equipped to hold their own without adjacent corps support are also the most likely corps to receive the long range equipment that gives them the advanced mutual support capability.²⁷

CROSSROADS

NATO's FOFA sub-concept has had a healthy past and, at least for now, has a viable, well planned road map for the future. Economic, political and military events in eastern Europe and the Soviet Union have, however, brought NATO to a crossroad.

Pressures are intense within all NATO countries and organizations to reduce the volume and scope of training and exercises, to reduce military budgets, and to reduce troop strengths, units, visibility and presence. Any or all of these actions will have an impact on NATO's overall program to improve its FOFA capability. Prudence has so far prevailed and NATO governments are waiting for more definitive answers about where the changes in the east will lead before yielding to pressures to take early, unilateral action.

Options are being considered by every NATO office and organization, every national government and military, and every analysis organization familiar with NATO policy and structure. As CFE, START and follow on agreements are signed and implemented, and as eastern Europe and the Soviet Union become less of a threat to European security, NATO will have clearly defined alternatives to guide them in choosing the proper road to follow. Whatever the choices are, most of NATO's plans, programs and concepts will undoubtedly need to be updated.

ENDNOTES

1. NATO Facts and Figures, p. 136.
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3. Interview with Ron Perry, COL, SHAPE Staff, Mons, Belgium, 26 March 1990.
4. Interviews with Michael Evans, COL, Operations Division, AFCENT, Brunssum, Netherlands, 1 May 1990; Joseph Roderio, COL, USAF, Offensive Operations Division, AAFCE, Ramstein AB, Germany; Patrick Russell, LTC, British Army, G2 Staff, NORTHAG, Muenchen-Gladbach, Germany, 3 May 1990; and Robert Farrenkopf, LTC, G3 Air Staff, CENTAG, Heidelberg, Germany, 4 May 1990.
5. Interview with Patrick Russell, LTC, British Army, G2 Staff, NORTHAG, Muenchen-Gladbach, Germany, 3 May 1990; and Guy Willis and Charles Dick, "Beyond the Corps Battle in NATO's Central Region - An Interview with General Hans-Henning von Sandrart," International Defense Review, February 1989, p. 169.
6. Interview with David Cowley, LTC, Commander, 1st Military Intelligence Battalion (Aerial Exploitation), Wiesbaden, Germany, 22 March, 1990; and Brian Kenny, "FOFA in the Northern Army Group," International Defense Review, February 1990, p. 147.
7. Gabriel Ferenczy, "Battlefield Surveillance and Target Acquisition," NATO's Sixteen Nations, August 1989, p. 51.
8. Interview with Michael Evans, COL, Operations Division, AFCENT, Brunssum, Netherlands, 1 May 1990.
9. Interview with Peter Hoscum, LTC, G2 Staff, NORTHAG, Muenchen-Gladbach, Germany, 3 May 1990; and Kenny, p. 147.
10. Interview with Robert Farrenkopf, LTC, G3 Air Staff, CENTAG, Heidelberg, Germany, 4 May 1990; Peter Inge, "Developments in the Land Battle," RUSI Journal, Winter 1989, p. 12; and Kenny, P. 146.
11. General concepts drawn from U.S. Army Field Manual 31-22 and unclassified training in SOF structure and missions.
12. The term air interdiction (AI) is used in a generic form and includes both traditional AI and battlefield air interdiction (BAI).
13. Kenny, p. 146.

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14. Interview with Ken Carlson, COL, ODCSOPS, USAREUR, Heidelberg, Germany, 4 May 1990.
15. Willis, p. 169.
16. Interview with Ken Carlson, COL, ODCSOPS, USAREUR, Heidelberg, Germany, 4 May 1990.
17. Multiple sources listing and discussing FOFA related equipment of each NATO country were used in making this comparison and coming to this conclusion.
18. Rogers, p. 2.
19. Mark Hewish, "Attacking Targets Beyond the FEBA - NATO Needs New Weapons," International Defense Review, August 1984, P. 1055.
20. Joachim Heyden, "Forewarned is Forearmed - Different Reconnaissance, Surveillance and Target Acquisition Systems for FOFA," NATO's Sixteen Nations, August 1987, p. 40; and U.S. Congress, OTA, New Technologies for NATO - Implementing Follow-on Forces Attack, June 1987, p. 78.
21. Interview with Ron Perry, COL, SHAPE Staff, Mons, Belgium, 26 March 1990.
22. U.S. Congress, Office of Technology Assessment, New Technology for NATO: Implementing Follow-on Forces Attack, June 1987, p. 10.
23. Interview with Ken Carlson, COL, ODCSOPS, USAREUR, Heidelberg, Germany, 4 May 1990.
24. U.S. Congress, OTA, New Technologies for NATO - Implementing Follow-on Forces Attack, June 1987, p. 78.
25. Interview with Patrick Russell, LTC, British Army, G2 Staff, NORTHAG, Muenchen-Gladbach, Germany, 3 May 1990.
26. Interviews with Patrick Russell, LTC, British Army, G2, NORTHAG, Muenchen-Gladbach, Germany, 3 May 1990; and Sid Morris, Wg Cdr, Royal Air Force, IS, NATO Headquarters, Brussels, Belgium, 29 March 1990.
27. U.S. Congress, OTA, Technologies for NATO's Follow-on Forces Attack Concept, p. 13.

CHAPTER IV

FUTURE

In a recent interview with journalists from two internationally known defense periodicals, General John R. Galvin, SACEUR, said: "The main points, as we reduce forces, ... will be how to maintain and protect your own mobility, and inhibit your adversary's mobility. ... That means that follow-on forces attack will remain important. In fact, it will grow in importance."¹ Echoing the sentiments of General Galvin, in a speech to the European based members of the Association of the United States Army, General Hans-Henning von Sandrart, CINCENT stated that: "Artillery systems ... along with air assets and surveillance and target acquisition systems will play a major role in dealing with the follow-on forces. FOFA will continue to be an important area but will have to be readdressed in the light of drastically changed threat models and our own limited assets."²

Personal interviews with a number of NATO staff officers responsible for developing and implementing the FOFA sub-concept within their commands brought similar responses.³ The staff officers interviewed unanimously felt that Follow-on Forces Attack will play a critical role in NATO's operational concept well into the foreseeable future. Structure, emphasis, equipment and schedules may change to accommodate the political, economic

and military realities that are unfolding; however, the basic concept will remain sound and necessary.

POLITICAL

Over the past twelve months, eastern Europe and the Soviet Union have undergone a metamorphosis so extreme that it could not have been predicted by western political analysts. Similarly, few political scientists are willing to predict how far the changes will go, how successful they will be, or how durable they will be. In spite of the uncertainty inherent in the ongoing revolution, NATO's task is to evolve and adapt to the changing political climate while continuing to provide security for all member countries.

NATO, and therefore NATO's foundations, strategies and concepts are all under scrutiny to insure their validity and applicability to the changing political environment. FOFA is one of the concepts being evaluated and its future and form will be driven, in part, by political inputs such as treaty negotiations, European unification and public opinion.

Treaty Negotiations

On the nuclear side, the existing INF, the projected START and the potential Short-Range Nuclear Forces (SNF) treaties may all affect the FOFA sub-concept. FOFA is an integral part of the conventional force leg of the triad of forces which forms the basis for NATO's Flexible Response strategy. As the potential

and effectiveness of the tactical and strategic nuclear legs of the triad are varied through arms control agreements, adjustments must also be made in the conventional leg and that includes FOFA. For example, a weaker nuclear deterrent might suggest a relatively stronger conventional force to sustain the viability of the Flexible Response strategy. A stronger conventional force within the context of troop and equipment reductions might mean a stronger FOFA capability.

Current and potential CFE negotiations will impact FOFA directly. Negotiators are discussing limits on the numbers of certain military equipments and personnel stationed in Europe from the Atlantic to the Urals. Of the six categories being negotiated, four are integral parts of the FOFA concept. Combat aircraft, helicopters and artillery directly support the attack of follow-on forces and, like every other NATO operational concept, FOFA relies on adequate and trained manpower to be successful. Future CFE negotiations might well consider further reductions in the current categories or even expand restrictions to conventional missile delivery vehicles, munitions types or numbers, guidance mechanisms et cetera. Limitations in any of these areas will require adjustments in the FOFA sub-concept.

Open Skies negotiations began on 12 February 1990 in Ottawa among the sixteen NATO and seven WTO member countries.⁴ When and if an Open Skies regime is established, it might also have a significant impact on the FOFA sub-concept. Surveillance or observation are integral components of both FOFA and Open Skies.

Certainly the same technologies, perhaps the same sensors and possibly even the same integrated systems could be used for both. Surveillance systems could rapidly become the priority element of FOFA and any sensor development or adaptation for an Open Skies regime should consider FOFA requirements.

General easing of tensions worldwide, particularly in Europe, has created an atmosphere where any exercise or scenario is closely scrutinized by political and military authorities prior to implementation. Governments must be careful to avoid sending the wrong message. Within the CSCE framework, the requirement for prior notification and observation of certain military activities (ie. exercises) within Europe has been adopted.⁷ It is reasonable to expect that within the CSCE and the Conference on Confidence and Security-building Measures (CSBM) frameworks, NATO and WTO countries might also adopt a restrictive policy on the conduct of future military exercises. Any restrictions on exercise numbers, participants, or scenarios might affect the development and effectiveness of the FOFA sub-concept within NATO. FOFA is primarily based on ET and complex high technology systems require extensive and continuous training. Most of the systems that support the FOFA battle are just reaching or will soon reach the field. Initial, continuation and replacement training will be critical to the continued success of the systems and the concept.

European Unification

The artificial barriers that have divided Europe for more than forty years began to erode in 1989 and continue to erode today. Hostile neighbors may soon be trusted friends, trading partners and possibly allies in efforts to promote democracy, human rights and lasting peace in Europe. These political changes will bring inevitable changes in NATO. The traditional linear layer cake defense in the central region will most likely give way to a more mobile defense to accommodate the reduction in deployed forces and the changing dynamics of a potential European battlefield. Many operational concepts, including FOFA will be modified to accommodate the changes.

In the near future, a vast expanse of less hostile, neutral or even friendly territory will lie adjacent to NATO's central region. The general shift toward democracy and western values has essentially created a buffer zone between NATO and the Soviet Union in central Europe. The situation on NATO's northern and southern flanks is less progressive. It will only be affected by internal changes in the Soviet Union where the developments are slower, potential for change is less, and the possibility of ethnic and regional instability is higher. That means FOFA requirements on the flanks will remain relatively constant until concrete, not projected, changes are realized in Soviet capabilities, philosophies and goals. In the central region, reduced forces and greater separation between the Soviet Union and NATO forces will increase emphasis on longer range

systems. For the immediate future, NATO's plan for deterring and countering potential aggression will probably be based on a concept of reinforcement and forward movement from the Soviet Union and on reduced front line forces on both sides. FOFA may become the focal point of NATO's conventional defense in the central region.

Public Opinion

Optimism abounds throughout the public sectors of all NATO countries and discussions of concepts like war, defense, NATO, WTO, Flexible Response, Forward Defence and FOFA are not on the agenda. More pleasant and urgent topics such as arms reductions, stability, peace, trade, deficit reduction, inflation control, cooperation and consultation are on the agenda. This shift in priorities is a welcome change from the political tensions of the past forty five years; however, progress in eastern Europe and the Soviet Union will be slow and the final outcome is still uncertain. The peoples of the world will have entered the twenty first century before many of today's initiatives and changes run their course. In the meantime, security and democracy must be maintained in Europe and NATO is essential for that goal.

The challenge for NATO will be to retain old and secure new public support for all of the elements of NATO's revised strategy. That task falls primarily on the Atlantic Treaty Association (ATA) but it also requires positive action by

executive and legislative personnel from all NATO countries and from all NATO commanders, staffs and soldiers. By emphasizing the positive aspects of NATO and its strategies and deflecting the criticisms, NATO will remain strong and continue to insure a viable conventional deterrence in Europe.

ECONOMIC

Changes in world politics will soon turn spending priorities away from defense and toward domestic and social programs. Rising national debts and inflation are becoming problems for many countries of the world and the general trend is to spend less overall and significantly less on defense. Just recently, the defense ministers of all NATO countries abandoned their long-held objective of a 3% annual increase in national defense budgets to reflect the decreasing threat of aggression from the WTO.² Generally speaking, defense related budget decisions will become increasingly more difficult to make.

Programs that support FOFA will be among the first to be scrutinized for reduction or elimination for several reasons. Most of the programs that support FOFA are somewhere in the development cycle and not yet in the field; most are based on ET which is, by nature, more expensive and less understood; most were justified based on the old follow-on force threat and the old European battlefield; and, NATO's future operational concepts and FOFA's role in them is still being defined. All of these points make NATO's FOFA sub-concept economically

vulnerable. By accentuating 1) the benefits of FOFA in NATO's new strategy; 2) the applicability of FOFA related systems throughout the depth of the battlefield; 3) the potential of FOFA related systems across the full spectrum of conflict; and 4) the applicability of the ET, and even the systems supporting FOFA, to other national challenges such as terrorism, drug interdiction and arms control verification, NATO's FOFA sub-concept will survive and prosper.

MILITARY

Emphasis

As military budgets begin to level off and eventually decline throughout NATO, proponents for each operational concept, each discipline and each service within each NATO country will be in fierce competition for money to support their programs. Traditional rivalries and prejudices will be amplified and true non-parochial joint or combined research, development and acquisition budget decisions will be more difficult to make. Within NATO, preparation and execution of the FOFA battle must be both joint and combined if it is to be effective. Therefore, FOFA must be closely managed nationally and internationally if it is to remain viable.

There is little doubt that international tensions have eased, the threat of aggression against NATO has decreased, and warning and preparation time for a potential WTO attack have been extended. This situation gives NATO the opportunity to step back

and reevaluate its operational concepts and its structure. Generally within the countries and the services and specifically within the FOFA sub-concept, priorities might shift from building, deploying and stockpiling combat power to a more rounded approach of developing the overall architecture and support systems. Within FOFA that means placing more priority on fielding C3 and sensor systems and fielding only the minimum number of weapons systems necessary to maintain an effective deterrent.

FOFA range priorities have generally been placed on the 30km to 150km range band to meet the requirements of the WTO threat. The dynamics of the battlefield are changing and FOFA between 150km and 800km may become more critical to forward defense and the close battle in the future. Nothing should be done to detract from the programs and progress to date; however, systems that look and shoot deeper into an aggressors rear area warrant renewed emphasis.

Sensors, communications, launchers and munitions that are applicable to land, sea and air platforms, common to all services, and compatible with equipments of other NATO countries significantly enhance the FOFA sub-concept. Broad spectrum sensors and systems that cover the full depth of the battlefield provide increased benefit for the cost. And, systems that apply across the military, paramilitary and civil spectrums gain and retain broad support more quickly than those that have narrow application. Any system that falls into one or more of these

categories is certainly preferable to another that falls into none. Beyond multilateral negotiations and mutual agreements, limited funding and the opportunity for a fresh look at NATO strategies and concepts may provide incentives for planners to place more emphasis on true joint and combined operations and systems.

Structure

NATO's future force structure, whether it is based on national or multinational units or on some degree of role specialization, will present a challenge to FOFA concept managers. National FOFA capabilities vary significantly from country to country and potential budget and forces reductions will only aggravate those differences. Whatever plan is adopted for NATO generally, and for FOFA specifically, a balanced capability from north to south would be an admirable goal. To accomplish this goal, radical changes in national mindsets will be required. Security restrictions on sharing intelligence, nationalistic views on a common language, apprehensions about true multi-service and multinational command, supervision and rating, narrow views on multinational or NATO sponsored development and procurement, and long standing definitions of service and national roles and missions must all be breached.

Establishing multinational units will send a strong positive political message to nations within and outside of NATO. The message would be one of solidarity, flexibility and adapt-

ability." For FOFA and many other NATO operational concepts, multinational units will present a significant challenge but may also be a blessing in disguise. Standardization and interoperability that are so essential to FOFA are indispensable to a unit made up of soldiers and equipment from two or more countries. If some or all NATO countries are willing to work out the problems associated with multinational integration, then successful FOFA will be a natural by-product.

The concept of role specialization holds some promise for NATO and FOFA as well. It would allow countries to do what they do best and what they can do effectively with the technological, monetary and manpower assets available to them. The disadvantage is that some countries may lose the well rounded defense structure they deem necessary for national defense or military actions outside the framework of NATO. For FOFA, role specialization may compliment the multinational unit concept to make them both viable alternatives.

Equipment

STA, weapons and C3 systems with appropriate specifications and in adequate numbers are essential to the success of the FOFA battle. NATO is only midway through its long term program to establish an effective FOFA capability, and continuing support by all of NATO's national governments is essential to see the program through to fruition. The same flexibility and imagination required to update NATO's overall strategies and structures

is required to update procurement programs that support individual operational concepts, including FOFA. Program adjustments such as changes in platforms, standards, specifications, sources or partners may be required.

Each of NATO's operational concepts has an associated suite of equipment that it requires to be viable and successful. FOFA differs from the rest in that nearly all of the systems supporting FOFA are initial capabilities and not replacement or upgraded capabilities. Without key STA systems, such as Joint Surveillance Target Attack Radar System (JSTARS) and multi-national UAVs, C3 systems such as the Battlefield Information Collection and Exploitation System (BICES), and weapons systems such as the combat drone and Joint Tactical Missile System (JTACMS), FOFA cannot function as an effective sub-concept of operations for NATO.

Schedule

Initial operational capabilities (IOCs) for many of the systems that support FOFA reach far into the nineties and many of them have already felt the cutting edge of the budget axe. Some programs will be justifiably reduced or terminated but an equal number should be augmented or accelerated. STA systems that support arms control and verification, open skies, drug interdiction, terrorism et cetera, C3 systems that provide capabilities that have not previously existed, and any system essential to NATO's updated military concepts and strategies are

examples of programs that might require augmentation or acceleration.

Doctrinal Link

Many officials within NATO have suggested that the term FOFA should be changed to something more appropriate and less offensive. Names such as Joint Precision Interdiction¹⁷, Joint Applied Interdiction¹⁸, or just plain Joint Interdiction¹⁹ have been suggested. One officer even offered the personal opinion that the term FOFA should be eliminated all together and that the attack of follow-on forces should be dealt with as an integral part of an overall warfighting concept, not as a separate category²⁰. All of these suggestions are based on valid concerns for the future of FOFA as an integral part of NATO's operational concept. Changing or eliminating the name will not change the structure or the requirement for FOFA. It might, however, be incorrectly perceived as an attempt to revive or sustain a troubled concept and, as a result, might place acquisition programs for equipment that cite FOFA in their requirements document at risk. On the other hand, if FOFA is to be renamed, there is no better time than in conjunction with the evaluation and redefinition of NATO's strategies and concepts.

FOFA was originally developed as a subset of interdiction.²¹ Today, it continues as a subset of interdiction and becomes more joint each time a new long range Army or Navy system with FOFA capabilities is fielded. In the future, FOFA is likely

to remain a focused subset of interdiction, directing joint and combined NATO forces and firepower at a specific enemy force, at a specific place and time, to accomplish a specific task in support of the ground commander's scheme of maneuver."

ENDNOTES

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4. John H. Hawes, "Open Skies: From Idea to Negotiation", NATO Review, April 1990, p. 6-7.
5. NATO Facts and Figures, p. 96.
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8. "Final Communique of Defence Planning Committee," Atlantic News, 24 May 1990, p. A2.
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13. Interview with Robert Farrenkopf, LTC, CENTAG Staff, Heidelberg, Germany, 4 May 1990.
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CHAPTER V

CONCLUSIONS

As long as NATO maintains a military strategy, the concept of attacking follow-on forces must remain an integral part of that strategy. Yesterday, FOFA was essential to defend NATO against the numerically superior and deeply echeloned WTO. Today, FOFA is essential to defend NATO against a still numerically superior force and a politically and economically unstable eastern Europe and Soviet Union. Tomorrow, FOFA will be required regardless of the turn of events. At best, it will provide interim conventional deterrence and security for NATO throughout the transition to regional harmony and peace. At worst, it will keep NATO ready to continue its forty one year vigil for peace and security in Europe.

If, in the course of events, NATO chooses to revise its total land battle concept, then changing or deleting the term FOFA in the revised doctrine might be appropriate. If only small adjustments are made to NATO's strategy then a name change for FOFA would be ill-timed. It could conceivably cause irreparable damage to FOFA related training, development and procurement programs and gain only a slight semantical advantage for NATO's politicians. The same conclusions apply to creating a broad FOFA concept that incorporates rear area and close support interdiction using the accurate and lethal systems that support

FOFA. As part of a totally new concept, precision or focused interdiction might fit; however, incorporating them into the existing FOFA concept would only cause confusion and jeopardize FOFA's legitimacy.

Political events and the overwhelming perception of a reduced threat and reduced tensions in Europe will undoubtedly ignite a complete review of all defense related procurement programs throughout NATO. Systems that support the FOFA concept can survive that scrutiny if the facts are presented properly. Emphasis should be placed on the broad applicability of many FOFA related systems throughout the depth of the battlefield, throughout the spectrum of conflict, across civil, military, and paramilitary boundaries, and in support of treaty verification and monitoring. Some programs will need to be eliminated, some will need to be modified and some will need to be expanded. The capability is critical but no program should be held as sacred. Only an honest, joint, multinational evaluation will suffice.

Standardization and interoperability are critical to the success and future of FOFA. FOFA terminology, definitions, goals, structure and capabilities should be standard and FOFA related equipment should be interoperable throughout NATO and within national elements supporting NATO. Great progress has been made recently throughout NATO on the issues of standardization and interoperability; however, increasing costs, decreasing

budgets and changing public and national priorities make rapid and continued progress in this area vital to the success of all of NATO's strategies and concepts, including FOFA.

Declining tensions and expanding reaction time to prepare for a potential conflict in Europe has created a unique opportunity for reflection and redirection. Within the FOFA sub-concept, emphasis should be shifted toward C3 and STA structures and equipment. Combat power and weapons capabilities remain important but the requirement for large quantities, stockpiles, and forward deployments is declining. Conversely, crisis monitoring, indications and warning, and effective communications are becoming more important. By concentrating in the support areas during this period of decreased tensions, NATO can deter and prepare for potential conflict more effectively.

Emerging technologies are expensive and, in a time of tight budgets, high costs could hamper the development of an effective FOFA capability. Four areas require emphasis to keep this from happening. Standardization and interoperability have already been discussed. The other problems deal with national and multinational procurement policies. NATO countries currently pay premium prices for the application of new technologies to new systems; however, by the time the systems reach the field, the technology is several generations old and greatly overpriced. Reduce the time from MND to fielding and loosen restrictions on program updates and a better product will emerge. With better products, NATO's operational concepts will be more effective.

FOFA has a future in NATO's concepts and strategies. Because it is maturing and sometimes misunderstood, it is an easy target for verbal and budget attacks. A single concept supported by one voice and carefully integrated into NATO's strategy will survive and serve NATO and its member countries far into the future.

ACRONYMS AND ABBREVIATIONS

ACE	Allied Command Europe
AI	Air Interdiction
ATA	Atlantic Treaty Association
BICES	Battlefield Information collection and Exploitation System
CB	Command, Control and Communications
C3I	Command, Control, Communications and Intelligence
CDI	Conventional Defence Improvement Initiative
CFE	Conventional Forces in Europe
CMF	Conceptual Military Framework
CNAD	Conference of National Armaments Directors
CRINCA	Central Region Intelligence Communications Architecture
CSBM	Confidence and Security Building Measures
CSCE	Conference on Security and Cooperation in Europe
DPC	Defence Planning Committee
ET	Emerging Technologies
FOFA	Follow-on Forces Attack
GDP	General Defence Position
INF	Intermediate Range Nuclear Forces
IOC	Initial Operational Capability
JSTARS	Joint Surveillance Target Attack Radar System
JTACMS	Joint Tactical Missile System
KMC	Key Mission Component
LOCE	Limited Operational Capability Europe
LTPA	Long Term Planning Areas
LTPG	Long Term Planning Guidelines
MBFR	Mutual and Balanced Force Reductions
MC	Military Committee
MLRS	Multiple Launch Rocket System
MND	Mission Need Document
MSC	Major Subordinate Command
NATO	North Atlantic Treaty Organisation
NMA	NATO Military Authorities

ACRONYMS AND ABBREVIATIONS (CONT)

OMG	Operational Maneuver Group
SACEUR	Supreme Allied Commander Europe
SHAPE	Supreme Headquarters Allied Powers Europe
SNF	Short Range Nuclear Forces
SOF	Special Operations Forces
STA	Surveillance and Target Acquisition
START	Strategic Arms Reduction Talks
TRS	Tactical Reconnaissance System
UAV	Unattended Aerial Vehicle
USAWC	United States Army War College
UW	Unconventional Warfare
WTO	Warsaw Treaty Organization

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